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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,702	05/03/2005	Harold A Goldsberry III	CH-756/MD02-94	7830

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Lanxess Corporation
Law & Intellectual Property Department
111 Ride Park West Drive
Pittsburgh, PA 15275-1112

EXAMINER

CORDRAY, DENNIS R

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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11/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/533,702

Applicant(s)

GOLDSBERRY ET AL.

Examiner

Dennis Cordray

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/5/07
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 16, 30 and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 16, 30 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/22/05 10/20/06 7/19/07
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of the invention of Group I, claims 1-11, 16, 30 and 33 in the reply filed on 10/5/2007 is acknowledged.

Oath/Declaration

The oath or declaration submitted 5/3/2005 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because:

It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The originally submitted Oath recites the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56(a), rather than 37 CFR 1.56.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 6 recites a hydrolyzed alkenylsuccinic anhydride in an amount ranging from about 1 to about 99% based on the total weight of the emulsion. The claim recites ratios opposing those in Claims 2 and 3, which generally recite an amount of starch of at least 20% of the amount of anhydride, and thus emulsion comprising less than about 83% anhydride. The claim also appears to oppose the recitation in Claim 1 of a high ratio of starch to anhydride. Finally, the instant Specification only describes a hydrolyzed alkenylsuccinic anhydride in an amount ranging from about 1 to about 99% based on the total weight of the alkenylsuccinic anhydride rather than on the weight of the emulsion (p 8, 2nd par). The Examiner believes that an emulsion comprising 99% alkenylsuccinic anhydride is unlikely to form an emulsion suspended in less than 1% of a first starch component and having a second starch component and that such an emulsion would be considered unlikely to one of ordinary skill in the art. The Specification provides no guidelines teaching one of ordinary skill how to form such a concentrated emulsion of alkenylsuccinic anhydride suspended in a starch component and having a starch: alkenylsuccinic anhydride ratio sufficiently high enough to impart useful sizing properties.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11, 16, 30 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-2, 7-9, 16 and 30 recite a starch:alkenylsuccinic anhydride ratio fail to not specify if the starch is the first starch, the second starch or both starches combined. Claim 33 recites starch:alkyl ketene dimer ratio but similarly fail to specify if the starch is the first starch, the second starch or both starches combined. The claims are thus indefinite as to the intended scope.

Claim 6 recites a hydrolyzed alkenylsuccinic anhydride in an amount ranging from about 1 to about 99% based on the total weight of the emulsion. The claim recites ratios opposing those in Claims 2 and 3, which generally recite an amount of starch of at least 20% of the amount of anhydride, and thus emulsion comprising less than about 83% anhydride. The claim also appears to oppose the recitation in Claim 1 of an emulsion comprising alkenylsuccinic anhydride suspended in a first starch component, having a second starch component and having a high ratio of starch to anhydride. The Examiner believes that an emulsion comprising 99% alkenylsuccinic anhydride suspended in less than 1% of a first starch component and having a second starch component is unlikely to form. Finally, the instant Specification only describes a hydrolyzed alkenylsuccinic anhydride in an amount ranging from about 1 to about 99% based on the total weight of the alkenylsuccinic anhydride rather than on the weight of the emulsion (p 8, 2nd par). The intended scope of the claimed subject matter is thus considered indefinite.

The remaining claims depend from and inherit the limitations Claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 16 and 30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yoshioka et al (EP-257772-A1) as evidenced by Chunyu "Alkenyl Succinic Anhydrides (ASA): a Neutral sizing agent", China Pulp & Paper, No. 3, 2002– provided by applicant).

Yoshioka et al discloses an aqueous sizing composition comprising an emulsion of ASA suspended in a first cationic starch component and diluted with an aqueous composition of a second cationic starch component. The disclosure of the composition as a sizing composition for paper implicitly discloses that it imparts useful sizing properties to a fibrous substrate or, at least, it such useful sizing properties have been obvious to one of ordinary skill in the art at the time of the invention. In a disclosed example, the composition is made by emulsifying 2.5 parts of 95 wt-% ASA and 5 wt-%

of a surfactant (polyoxyethylenenonylphenoether phosphoric ester) in 100 parts of 5% cationic starch solution, followed by dilution with a 2% cationic starch solution to form a 0.5 wt-% ASA composition (Abs; p 4, lines 1-11, Example 1). From the Example, the following can be calculated:

Ratio of first cationic starch component to ASA = 2.1:1,

Ratio of second cationic starch component to ASA = 3.1:1,

Ratio of total starch component to ASA = 5.2:1,

Amount of surfactant is 5.2% of amount of ASA.

Yoshioka et al further discloses that the amount of starch to ASA can range from 0.5 to 50 parts by weight to 1 part ASA (p 3, lines 26-28). Examples are given wherein the ASA particle size ranges from 0.5 to 1.5 microns, depending on the starch and other additives used (pp 4-6, Examples 2-10 and Table on p 6). The disclosed compositions and method significantly overlap, and thus anticipate or at least make obvious the claimed compositions and method.

Several examples exhibiting a Stöckigt sizing degree of greater than 10 seconds are given (Table on p 6).

The claimed Cobb sizing values, HST values and temperature stability are not disclosed by Yoshioka et al. However, the compositions are substantially the same as the claimed compositions and will have the claimed properties or, at least, it would have been obvious to one of ordinary skill in the art at the time of the invention to obtain the claimed properties because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of

either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Yoshioka et al does not disclose hydrolyzed ASA. It is well known that ASA is very reactive and will readily hydrolyze in the presence of water (see Chunyu, p 3, Figure 4 and paragraph immediately below the figure). It would have been obvious to one of ordinary skill in the art to obtain an amount of hydrolyzed ASA within the claimed range due to the large amount of water present in the sizing compositions.

Claim 30 is a product-by-process claim. The product of Yoshioka et al appears to be the same as or similar to the claimed product, an aqueous emulsion of ASA and starch, although produced by a different process. The burden therefore shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). "In the event any differences can be shown for the product of the product-by-process claim 30 as opposed to the product taught by the reference Yoshioka et al, such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results: see also *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)"

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al.

Yoshioka et al does not disclose whether the particle size distribution in the sizing compositions is monomodal or multimodal. However, compositions having particle sizes from 0.5 to 1.5 microns are disclosed. No evidence of surprising results is given or discussed in the instant Specification for using a multimodal particle distribution over a monomodal distribution and no comparison is made with the nearest prior art cited herein. Absent any evidence of surprising properties of the solutions of the instant invention over the disclosure of Yoshioka et al, it would have been obvious to one of ordinary skill in the art to use any kind of particle distribution, monomodal or multimodal for the sizing composition of Yoshioka et al as functionally equivalent options.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al in view of Hassler et al (6159339).

Yoshioka et al does not disclose alkyl ketene dimers (AKD) as the sizing agent.

Hassler et al discloses that ASA and/or AKD are suitable sizing agents used with starch in sizing compositions for paper (Abs; col 1, lines 3-10; col 1, line 61 to col 2, line 17).

The art of Yoshioka et al, Hassler et al and the instant invention is analogous as pertaining to aqueous sizing compositions comprising cellulose reactive sizes and cationic starch. It would have been obvious at the time of the invention to one of ordinary skill in the art to use AKD in the sizing compositions of Yoshioka et al in view of

Hassler et al as a functionally equivalent option. Since ASA and AKD are both taught by Hassler et al for the same purpose, substituting one for the other would have yielded predictable results to one of ordinary skill.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 4-11 and 33 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-10 and 45 of copending Application No. 10/534202. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application are generic to the instant Claims. The copending application recites aqueous sizing compositions comprising emulsions having the same cellulose reactive sizes, a surfactant and a starch component. The open claim language of the copending

application permits a species of the invention comprising a second starch, thus are generic to the instant claims. The sizing compositions have the same particle sizes and the same sizing effects on fibrous substrates.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 3-11 and 33 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-4, 6-13 and 47 of copending Application No. 10/533190. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application are generic to the instant Claims. The copending application recites aqueous sizing compositions comprising emulsions having the same cellulose reactive sizes, a polymer solution and a second component that can be a starch. The instant claims embody a species of the copending claims wherein the polymer is starch. The sizing compositions have the same particle sizes, overlapping starch:reactive size ratios, a surfactant and the same sizing effects on fibrous substrates.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC
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